

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Original) An apparatus comprising:

a plurality of base stations, each base station comprising:

a positioning receiver to generate base station location information, each positioning receiver having a known location;

a link to a network to transmit said base station location information;

a correction information calculation module coupled to the network to receive base station location information from each of the plurality of base stations via the network, the correction information calculation module to calculate correction information as a function of the base station location information and the known location for all of the plurality of base stations.

2. (Original) The apparatus of claim 1 further comprising:

a plurality of non-selected base stations, each also having a known location and a positioning receiver to generate base station location information, each non-selected base station also having a connection to the network to transmit said base station location information,

wherein said correction information calculation module further comprises:

a station selection module to select location information from said plurality of base stations and to omit location information from said plurality of non-selected base stations from computation of said correction information.

3. (Original) The apparatus of claim 2 wherein said station selection mechanism is to select said plurality of base stations for use in computing correction information based at least in part on each of the plurality of base stations utilizing a set of satellites that is also utilized by a mobile device for which the correction information is being computed.

4. (Original) The apparatus of claim 2 wherein said station selection module is to make an initial selection of base stations based on coarse location information and then to make a secondary selection of base stations, which may or may not differ from the initial selection, based on a more precise roving device location computed using a correction information computed using the initial selection.

5. (Original) The apparatus of claim 2 wherein said correction information calculation module comprises:

an integrity monitoring module to detect and exclude faulty location information from a base station.

6. (Original) The apparatus of claim 5 wherein said integrity monitoring module is to detect and exclude location information corrupted by cycle slip and code multipath errors.

7. (Original) The apparatus of claim 5 wherein said correction information calculation module further comprises:

a measurements integration module to stochastically integrate location information received from said integrity monitoring module to derive said correction information.:

8. (Original) The apparatus of claim 1 wherein each link comprises a first network interface to receive base station location information from a positioning receiver at a base station and to generate a first set of signals for transmission of said base station location information from said positioning receiver.

9. (Original) The apparatus of claim 8 wherein said first network interface packetizes said base station location data for network communication to said correction information calculation module.

10. (Original) The apparatus of claim 8 wherein said first network interface comprises a telephony communications interface, the apparatus further comprising:

a second link to receive said first set of signals via one or more signal lines from the base station and to extract said base station location data;

a second network interface to receive said base station location data from said second link and to generate a second set of signals for transmission of said base station location data to the correction information calculation module via the network.

11. (Original) The apparatus of claim 1 wherein said link comprises a modem to modulate base station location information from a positioning receiver into a modulated signal for transmission over a telecommunications link.

12. (Original) The apparatus of claim 11 further comprising:

a second link to receive said modulated signal from said telecommunications link and to extract said base station location information;

a network interface to receive said base station location information from said second link and to generate a second set of signals for transmission to the correction information calculation module via the network.

13. (Original) The apparatus of claim 1 further comprising:

a receiver module to communicate with a positioning system to determine preliminary position-related information; and

a precise location calculation module to calculate a receiver location from said correction information and said preliminary position-related information.

14. (Original) The apparatus of claim 13 wherein said precise location calculation module and said receiver module are included in a roving receiver device, wherein said roving receiver device receives said correction information from said correction information calculation module via a message on the network that is converted to a wireless transmission from one of said plurality of base stations to said receiver module.

15. (Original) The apparatus of claim 13 wherein said precise location calculation module is located remotely from said receiver module, wherein said receiver module transmits said preliminary position-related information via a wireless message that is converted to a message that is transmitted on the network to said precise location calculation module.

16. (Original) The apparatus of claim 14 wherein said preliminary position-related information comprises a set of pseudoranges.

17. (Original) The apparatus of claim 14 wherein said correction information comprises one or more of LAAS-based pseudorange corrections and LAAS-based carrier-phase corrections.

18. (Original) An apparatus comprising:

- a plurality of cellular communications base stations, each base station comprising:
- a positioning receiver to generate base station location information, each positioning receiver having a known location;
- a link to a network to transmit said base station location information;
- a correction information calculation module coupled to the network to receive base station location information from each of the plurality of base stations via the network, the correction information calculation module to calculate correction information as a function of the base station location information and the known location for all of the plurality of base stations;
- a station selection module to select location information from a selected subset of said plurality of base stations and to omit location information from an omitted subset of said plurality of base stations from computation of said correction information;
- a receiver module to communicate with a positioning system to determine preliminary position-related information; and
- a precise location calculation module to calculate a receiver location from said correction information and said preliminary position-related information.

19. (Original) The apparatus of claim 18 wherein the network is the Internet and wherein said correction information calculation module and said station selection module are programs executed by a server connected to the Internet.

20. (Original) The apparatus of claim 19 further comprising:
a plurality of additional cellular base stations that do not provide location information to said correction information calculation module.

21. (Original) An apparatus comprising:

a network interface to receive base station location information from a plurality of base stations from a network;

a correction information calculation module to compute a correction information for a mobile device as a function of base station location information from all of the plurality of base stations.

22. (Original) The apparatus of claim 21 further comprising:

a station selection module to select said plurality of base stations as a selected set from a larger plurality of base stations, said selected set being chosen as being in proximity to said mobile device.

23. (Original) The apparatus of claim 22 wherein said station selection module is to select said selected set of base stations based on said selected set of base stations being in view of a set of satellites also being used by said mobile device for which said correction information is being computed.

24. (Original) The apparatus of claim 22 wherein said station selection module is to make an initial selection of base stations based on coarse location information and then to make a secondary selection of base stations, which may or may not differ from the initial selection, based on a more precise roving device location computed using an initial correction information computed using the initial selection of base stations.

25. (Original) The apparatus of claim 21 further comprising:
a data link to receive rover location information.

26. (Original) The apparatus of claim 25 wherein said data link comprises a link to an Internet service provider.

27. (Original) The apparatus of claim 25 wherein said data link comprises a link to a cellular phone service provider.


28. (Original) The apparatus of claim 21 further comprising:
a localized data services module to provide localized information based on a location computed using said correction information.

29. (Original) The apparatus of claim 22 wherein said correction information calculation module comprises:
an integrity monitoring module to detect and exclude faulty location information from a base station.

30. (Original) The apparatus of claim 29 wherein said integrity monitoring module is to detect and exclude location information corrupted by cycle slip and multipath errors.

31. (Original) The apparatus of claim 29 wherein said correction information calculation module further comprises:

a measurements integration module to stochastically integrate location information received from said integrity monitoring module to derive said correction information.

 32. (Original) An article comprising a machine readable medium storing instructions that, if executed by a machine, cause the machine to perform a set of operations comprising:

storing a plurality of location information communications from a plurality of base stations received via a network;

computing correction information for a mobile device as a function of contents of a subset of said plurality of location information communications and known locations of said plurality of base stations.

33. (Original) The article of claim 32 wherein the set of operations further comprises: selecting said subset based on a location of said mobile device.

34. (Original) The article of claim 33 wherein the set of operations further comprises:

computing a second subset based on a precise location determined by a precise location computation;

computing a precise location as a function of said correction information and coarse location information determined by said mobile device.

35. (Original) The article of claim 33 wherein the set of operations further comprises: providing location specific data based on a location computed using said correction information.

36. (Original) A method comprising:

receiving a plurality of location information communications from a plurality of base stations via a network;

computing correction information for a mobile device as a function of contents of a subset of said plurality of location information communications and known locations of said plurality of base stations.

37 (Original) The method of claim 36 further comprising: selecting said subset based on a location of said mobile device.

38. (Original) The method of claim 37 further comprising: receiving an initial estimate location for use as the location in selecting said subset; computing a second subset based on a precise location determined by a precise location computation.

39. (Original) The method of claim 36 wherein selecting said subset further comprises the operation of selecting a subset of the plurality of base stations so that each base station in the subset is in view of a set of satellites used by said mobile device.

40. (Original) The method of claim 36 further comprising:
computing a precise location as a function of said correction information and coarse location information determined by said mobile device.

41. (Original) The method of claim 40 wherein computing a precise location comprises:
determining a set of psuedorange information for said mobile device; and
adjusting a location computation using psuedorange or carrier-phase correction information included in said correction information.

42. (Original) The method of claim 36 further comprising:
computing a coarse location for said mobile device in said mobile device;
transmitting said coarse location to a system that computes precise locations; and
computing a precise location as a function of said coarse location and said correction information in said system that computes precise locations.

43. (Original) The method of claim 36 further comprising:
providing a location based service based on precise information computed as a function of said correction information and a coarse location of said mobile device.

44. (Original) A base station comprising:

a wireless communications module to communicate with a mobile device;

a global positioning system receiver module to generate base station location information;

a link module to receive said base station location information and to transmit at least partially via a network said base station location information to a system that calculates location correction information.

45. (Original) The base station of claim 44 wherein said link module comprises:

a first network interface to receive the base station location information from the positioning receiver at the base station and to generate a first set of signals for transmission of said base station location data from said positioning receiver.

46. (Original) The base station of claim 45 wherein said first network interface packetizes said base station location data for network communication to a correction information calculation module.

47. (Original) The base station of claim 45 wherein said first network interface comprises a telephony communications interface, the apparatus further comprising:

a second link to receive said first set of signals via one or more signal lines from the base station and to extract said base station location data;

a second network interface to receive said base station location data from said second link and to generate a second set of signals for transmission of said base station location data to the correction information calculation module via the network.

48. (Original) The base station of claim 44 wherein said link module comprises a modem to modulate base station location information from a positioning receiver into a modulated signal for transmission over a telecommunications link.

49. (Original) The base station of claim 48 further comprising:
a second link to receive said modulated signal from a communication link from the base station and to extract said base station location data;
a network interface to receive said base station location data from said second link and to generate a second set of signals for transmission to a correction information calculation module via the network.

50. (Original) The base station of claim 44 wherein said network is the Internet.

51. (Original) The base station of claim 44 wherein said network is a land-based dedicated communication channel.

52. (Original) A method comprising:
transmitting location information for a plurality of base stations to a networked correction information module;
receiving correction information from said networked correction information calculation module;
transmitting said correction information to a mobile device.

53. (Original) The method of claim 52 further comprising:
receiving coarse location information from a mobile device;

transmitting said coarse location information to said networked correction information calculation module.

54. (Original) The method of claim 53 wherein transmitting said coarse location information to said networked correction information module comprises transmitting said coarse location information to an Internet service provider.

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55. (Original) The method of claim 52 further comprising:
transmitting precise location information calculated by said mobile device from said correction information to a service provider;
transmitting location specific data from said service provider to said mobile device.

→ 56-63 (Cancelled)
